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AGATCTACACAAGGCAAATTGAAAAAATAGATAAAATTTTCGCAGGTATTAAAGCCGACTTAAAACAAATGAGTGAAGAA
TCTAGATGTGTTCCGTTTAACTTTTTTATCTATTTTAAAAGCGTCCATAATTTCGGCTGAATTTTGTTTACTCACTTCTT

GAAAAGAAAAAAATAAATACATATTTTGAGTTAGTAAAAGAGAAAGAAAAAATAAAAGAAGACCTCGGCTTAACAGTCGA
CTTTTCTTTTTTTATTTATGTATAAAACTCAATCATTTTCTCTTTCTTTTTTATTTTCTTCTGGAGCCGAATTGTCAGCT

AAAACCAGAAATAATAAAAAGAAAGAGACTGTGATTTTTAATGGAAATCGTGAGGAAAAGAAAATTTTAATTTTCATTTT
TTTTGGTCTTTATTATTTTTCTTTCTCTGACACTAAAAATTACCTTTAGCACTCCTTTTCTTTTAAAATTAAAAGTAAAA

CGAGGGATTAATTTGTTGTAAGTTGATGAAAAATCTAGATAAAAAATGCAGATCAAAAATGTGTTGAATTTGACATTATT
GCTCCCTAATTAAACAACATTCAACTACTTTTTAGATCTATTTTTTACGTCTAGTTTTTACACAACTTAAACTGTAATAA

GAAATACGTAGTATATCAATAATGGGGGTTTGTCTATTTTATTTTGCGAAGATTGAAAATCTGAGTGAAAGAAAATAGTT
CTTTATGCATCATATAGTTATTACCCCCAAACAGATAAAATAAAACGCTTCTAACTTTTAGACTCACTTTCTTTTATCAA

TGCGAGAGCAAAAAAACCCTTGCCGTTTTTTTCAAATGACTTTGGAAAAAATTCATTGTGAGCGGTAGCGAAACTTTGAA
ACGCTCTCGTTTTTTTGGGAACGGCAAAAAAAGTTTACTGAAACCTTTTTTAAGTAACACTCGCCATCGCTTTGAAACTT
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80 160 240 320 400 480

FIG._1A-1

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ATTTTTTACATTGGAAATTTGAAAAAATAAGGCAAAAGAAACTCAAATGGAAAAAATATTATTATAAAAAAAGGAGATCG

TAAAAAATGTAACCTTTAAACTTTTTTATTCCGTTTTCTTTGAGTTTACCTTTTTTATAATAATATTTTTTTCCTCTAGC

Asn Phe Leu His Trp Lys Phe Glu Lys Ile Arg Gln Lys Lys Leu Lys Trp Lys Lys Tyr Tyr Tyr Lys Lys Arg Arg Ser

GATATGGATTTTAAAAGCAGAAAACTGACATTGAATGAAAAAAAAAGATTTGGAAAAAATCTATGCTGAGAGTGAATTAAA 640

CTATACCTAAAATTTTCGTCTTTTGACTGTAACTTACTTTTTTTTCTAAACCTTTTTTAGATACGACTCTCACTTAATTT

Asp Met Asp Phe Lys Ser Arg Lys Leu Thr Leu Asn Glu Lys Lys Asp Leu Glu Lys Ile Tyr Ala Glu Ser Glu Leu Lys

AGCAAAAAAATTGGGAACTCAACCCGGTGTTGTTTTAGAAATGACGATGAAAGAAATGATGAAAAATATCAACCTCGATG 720

TCGTTTTTTTAACCCTTGAGTTGGGCCACAACAAAATCTTTACTGCTACTTTCTTTACTACTTTTTATAGTTGGAGCTAC

Ala Lys Lys Leu Gly Thr Gln Pro Gly Val Val Leu Glu Met Thr Met Lys Glu Met Met Lys Asn Ile Asn Leu Asp

TTAATGAAGAAACAGCAGGTCAATATAGGAAATTATTCAAAAATAAAGTTGAGCATAGTAAATCAGATGATCTAGTAACG 800

AATTACTTCTTTGTCGTCCAGTTATATCCTTTAATAAGTTTTTATTTCAACTCGTATCATTTAGTCTACTAGATCATTGC

Val Asn Glu Glu Thr Ala Gly Gln Tyr Arg Lys Leu Phe Lys Asn Lys Val Glu His Ser Lys Ser Asp Asp Leu Val Thr

FIG._1A-2

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GGACTATTAGAGTGTGGAACTCGAAATAGTTTTGATAAAACAAGAAGTGCCTTTCGTTTTTGTATTTGTGAGAGAATTCA
CCTGATAATCTCACACCTTGAGCTTTATCAAAACTATTTTGTTCTTCACGGAAAGCAAAAACATAAACACTCTCTTAAGT

Gly Leu Leu Glu Cys Gly Thr Arg Asn Ser Phe Asp Lys Thr Arg Ser Ala Phe Arg Phe Cys Ile Cys Glu Arg Ile Gln

GCAACTGAGAAAAGAAGCTGATAATGCAAGAAGAGTAAAAGATTTCGATACAATGAAAGCAAAAACTAAAGAGGCTTTTG
CGTTGACTCTTTTCTTCGACTATTACGTTCTTCTCATTTTCTAAAGCTATGTTACTTTCGTTTTTGATTTCTCCGAAAAC

Gln Leu Arg Lys Glu Ala Asp Asn Ala Arg Arg Val Lys Asp Phe Asp Thr Met Lys Ala Lys Thr Lys Glu Ala Phe

AATTGAGTTTTGTTTTTGATAAGGATTTTTTGAGTGAAAATAGAATTCAATGGAATGATATTTCTCACAACAAAAAAGAC
TTAACTCAAAACAAAAACTATTCCTAAAAAACTCACTTTTATCTTAAGTTACCTTACTATAAAGAGTGTTGTTTTTTCTG

Glu Leu Ser Phe Val Phe Asp Lys Asp Phe Leu Ser Glu Asn Arg Ile Gln Trp Asn Asp Ile Ser His Asn Lys Lys Asp

TCTGCAAGTAAAAGAAAAACAATGAAAGAAGCGGACACAATGGATGATATTTTTAAGAGGCTAAAAAATAATAAATCTAC
AGACGTTCATTTTCTTTTTGTTACTTTCTTCGCCTGTGTTACCTACTATAAAAATTCTCCGATTTTTTATTATTTAGATG

Ser Ala Ser Lys Arg Lys Thr Met Lys Glu Ala Asp Thr Met Asp Asp Ile Phe Lys Arg Leu Lys Asn Asn Lys Ser Thr

ATATGATCGTTATGCTGGATTCCTTTCTATTTGTTCGATTACAGGTTGCAGACCAGCAGAAGTTTTAAAGGGTATAGAGA
TATACTAGCAATACGACCTAAGGAAAGATAAACAAGCTAATGTCCAACGTCTGGTCGTCTTCAAAATTTCCCATATCTCT

Tyr Asp Arg Tyr Ala Gly Phe Leu Ser Ile Cys Ser Ile Thr Gly Cys Arg Pro Ala Glu Val Leu Lys Gly Ile Glu

FIG._1B-1

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Tyr Asp Arg Tyr Ala Gly Phe Leu Ser Ile Cys Ser Ile Thr Gly Cys Arg Pro Ala Glu Val Leu Lys Gly Ile Glu

TAGTAAGAAACAGATATGAGGATGGTATATCTTTTAAAATACTTGGTGCAAAGGTTGGAAATGACAGAGGGCAAAGCGAA
ATCATTCTTTGTCTATACTCCTACCATATAGAAAATTTTATGAACCACGTTTCCAACCTTTACTGTCTCCCGTTTCGCTT 1280

Ile Val Arg Asn Arg Tyr Glu Asp Gly Ile Ser Phe Lys Ile Leu Gly Ala Lys Val Gly Asn Asp Arg Gly Gln Ser Glu

AGAACATTACATTTTGATTTATCAAAATATCATGATAATGAGCAAATGAATTATATTTTGTCGCAATTAAAAGATAATAA
TCTTGTAATGTAAAACTAAATAGTTTTATAGTACTATTACTCGTTTACTTAATATAAAACAGCGTTAATTTTCTATTATT 1360

Arg Thr Leu His Phe Asp Leu Ser Lys Tyr His Asp Asn Glu Gln Met Asn Tyr Ile Leu Ser Gln Leu Lys Asp Asn Lys

ATTTTTCTACAAACCAGATGGGAAGCTCTACAACAGCTTGAGGCAATACCTCTACATCCAACATAGAACGTTTTCACTGT
TAAAAAGATGTTTGGTCTACCCTTCGAGATGTTGTCGAACTCCGTTATGGAGATGTAGGTTGTATCTTGCAAAAGTGACA 1440

Phe Phe Tyr Lys Pro Asp Gly Lys Leu Tyr Asn Ser Leu Arg Gln Tyr Leu Tyr Ile Gln His Arg Thr Phe Ser Leu

ATACACTTCGTCACAGGGTTGCGAGTGATCTCAAGGCATCCGGTGCAGATGACTTCACCATAGCGGCTNTTTTGGGTCAC
TATGTGAAGCAGTGTCCCAACGCTCACTAGAGTTCCGTAGGCCACGTCTACTGAAGTGGTATCGCCGANAAAACCCAGTG 1520

Tyr Thr Leu Arg His Arg Val Ala Ser Asp Leu Lys Ala Ser Gly Ala Asp Asp Phe Thr Ile Ala Ala ?m Leu Gly His

FIG._1B-2

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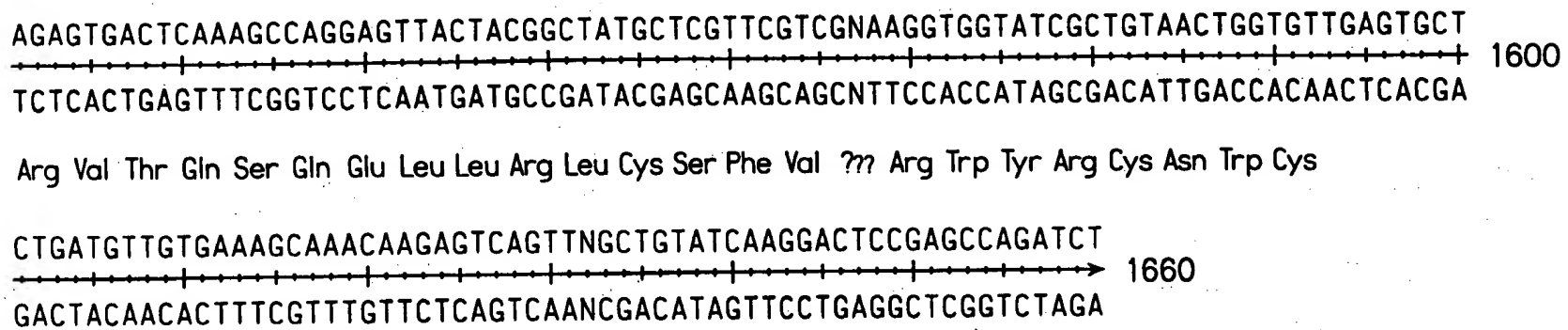

FIG._1C

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AGATCTCAACCAGTTTAAAATCGCACTTCAAGAAGTAAAAATAGGGGCCGGCACCGGCTCTTTTTTTGGTGTTTTTGTAG
TCTAGAGTTGGTCAAATTTTAGCGTGAAGTTCTTCATTTTTATCCCCGGCCGTGGCCGAGAAAAAAACCACAAAAACATC 80

TTAGTGGATATATCTGTTAGCTACAGAGAAAAGCGATTTTAGAGGGTTTGACGAGGTTTTTTCGAGCTATCCAGGGTTTT
AATCACCTATATAGACAATCGATGTCTCTTTTCGCTAAAATCTCCCAAACTGCTCCAAAAAAGCTCGATAGGTCCCAAAA 160

TGGGTTTTTGGGGTTGGATCAGAAAAGTCGTTCAAGATTATTGACATAAAGACAGGAAGGTTTATAACAAGTACCAGATA
ACCCAAAAACCCCAACCTAGTCTTTTCAGCAAGTTCTAATAACTGTATTTCTGTCCTTCCAAATATTGTTCATGGTCTAT 240

CGACAAAACCAGCTTTGCAGGCTGGCTTTGAAGGACTAAAAGAAGTGGGGACTTCTTTGAGTCTTGTAATCAAGTTGGTC
GCTGTTTTGGTCGAAACGTCCGACCGAAACTTCCTGATTTTCTTCACCCCTGAAGAAACTCAGAACATTAGTTCAACCAG 320

AGAACTCGATTACGATTTGTAAGTAGAAATCTAACTCACATTTCGCAGAAAGTCAAACTTACCTCTTAGTTACAACTCAA
TCTTGAGCTAATGCTAAACATTCATCTTTAGATTGAGTGTAAAGCGTCTTTCAGTTTGAATGGAGAATCAATGTTGAGTT 400

AAATTTCCTAGCCTTTTCAGATCCTTAAGCATACATATTTTGTTTAAACCGATTGTGTCCGGTGTTTGGTGTGGAGCCAT
TTTAAAGGATCGGAAAAGTCTAGGAATTCGTATGTATAAAACAAATTTGGCTAACACAGGCCACAAACCACACCTCGGTA 480

FIG._1D-1

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TGATCCGAGTGGTCAATATGTGATTGTTCGCCAAACAGTGTATGTAGGTCTAAACGGGGAGTGCTACAAAAGACCATACC
                                                                              560
ACTAGGCTCACCAGTTATACACTAACAAGCGGTTTGTCACATACATCCAGATTTGCCCCTCACGATGTTTTCTGGTATGG

CGAAACGAGTGCCTAAGTGTTTTGGTTATCAACCAGGTAAGCTATGAGAAAGCCCAGCCATAAATGGGGTTAGGTTGAAG
                                                                              640
GCTTTGCTCACGGATTCACAAAACCAATAGTTGGTCCATTCGATACTCTTTCGGGTCGGTATTTACCCCAATCCAACTTC

CAAGTCTTCATATGGTGCGACACAAGGGGTGTAGTAGGGTGTCGTCAAACTGAAAGGTTTGATAGCTCTAAGCTTGTGCT
                                                                              720
GTTCAGAAGTATACCACGCTGTGTTCCCCACATCATCCCACAGCAGTTTGACTTTCCAAACTATCGAGATTCGAACACGA

TCTGTGGGTCAAGCCTCAAGTGCTGATCTGTGGTGTCGTCTACCTGATAACTTTCACTTTTTCGAGTGAAATTCAGGAGG
                                                                              800
AGACACCCAGTTCGGAGTTCACGACTAGACACCACAGCAGATGGACTATTGAAAGTGAAAAAGCTCACTTTAAGTCCTCC

CGAAACTATGGGTCAAGCCCAGCTTTGCTGGGGTTCGGCACATCCAGCTTACAGCATTGGTGCTCTTGCGAAGCTGAAGC
                                                                              880
GCTTTGATACCCAGTTCGGGTCGAAACGACCCCAAGCCGTGTAGGTCGAATGTCGTAACCACGAGAACGCTTCGACTTCG
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FIG._1D-2

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ACAAAAATCTAATCCAGGGTTTGGGTTTTTTATACCAGAAGCAAAACAAAAAAATAAAACAAAGAAAAATTTTCGAGCGA 960
TGTTTTTAGATTAGGTCCCAAACCCAAAAAATATGGTCTTCGTTTTGTTTTTTTATTTTGTTTCTTTTTAAAAGCTCGCT

AAAAATATTTTGGAATTTTTTAAAGGCGATACTTGCTACCGCACTTTTGCCATATTTAAAACCTGACTATCTTTATAAGT 1040
TTTTTATAAAACCTTAAAAAATTTCCGCTATGAACGATGGCGTGAAAACGGTATAAATTTTGGACTGATAGAAATATTCA

TAATAGATATATCCGTTAGATTATAAAGTATGTTAAAAACGAGTAAAAACAATAACTTATATATTTAATTCTGAATTATA 1120
ATTATCTATATAGGCAATCTAATATTTCATACAATTTTTGCTCATTTTTGTTATTGAATATATAAATTAAGACTTAATAT

TTTGACAGTGATTATTTAATATATTAAGAGATATATCTATTAGCTTAAATATAACTAAAAAAAGAGGTAAATATATGGAT 1200
AAACTGTCACTAATAAATTATATAATTCTCTATATAGATAATCGAATTTATATTGATTTTTTTCTCCATTTATATACCTA

TGTGTATTTAAAAAAGCATTAGAAAATGAAATAGAACATTATAAAAAAGACGGTGATATCAAATCTTTCTTACAATACTT 1280
ACACATAAATTTTTTCGTAATCTTTTACTTTATCTTGTAATATTTTTTCTGCCACTATAGTTTAGAAAGAATGTTATGAA

GCATTACTTTGATATAGATAAAGCATTAAATGGTGATGAATGTGGCGATATTATAAACTCAAATTTATCCATTGATGAAA 1360
CGTAATGAAACTATATCTATTTCGTAATTTACCACTACTTACACCGCTATAATATTTGAGTTTAAATAGGTAACTACTTT

FIG._1E-1

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GTTTTGATCTTCTTGATGTTGAGCACAATTTCGGCTGGGCTTTCAATAAAATAATACAGAGACGAAATGAATATTTATCA 1440
CAAAACTAGAAGAACTACAACTCGTGTTAAAGCCGACCCGAAAGTTATTTTATTATGTCTCTGCTTTACTTATAAATAGT

TCAGCTAAAACTGAAAATGATTTTAAAAAATACTCGTTCTTTATTCATTCGATCAATTGGGAAGAATTTAATTACGATGA 1520
AGTCGATTTTGACTTTTACTAAAATTTTTTATGAGCAAGAAATAAGTAAGCTAGTTAACCCTTCTTAAATTAATGCTACT

GATGAGTACAATACATCAAGAAATGATTAAAGGATTAGATAATTACACATATGGAGAAATAACCATATGAATAATAAAAT 1600
CTACTCATGTTATGTAGTTCTTTACTAATTTCCTAATCTATTAATGTGTATACCTCTTTATTGGTATACTTATTATTTTA

AAGAGAATATATTGATTTCGAAATAACAAAAGATATAAAAGAAAGTCAGCTCTTAAAAATATCTGCATTGATCGATGTTT 1680
TTCTCTTATATAACTAAAGCTTTATTGTTTTCTATATTTTCTTTCAGTCGAGAATTTTTATAGACGTAACTAGCTACAAA

TAAAAGTAGATGAAAAATTTATTGATGAAGAGGATTTGCAACTAAAGATATTGAAAATATCGTATGAAAATCCTATTGAT 1760
ATTTTCATCTACTTTTTAAATAACTACTTCTCCTAAACGTTGATTTCTATAACTTTTATAGCATACTTTTAGGATAACTA

GATCCAGATGATGGCATAAGAAAATCACAATTCGCACGAAGAAATGCCTATGCTTTCCGCATTAAAAAAACAAGCAAAAA 1840
CTAGGTCTACTACCGTATTCTTTTAGTGTTAAGCGTGCTTCTTTACGGATACGAAAGGCGTAATTTTTTTGTTCGTTTTT

FIG._1E-2

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FIG._1F

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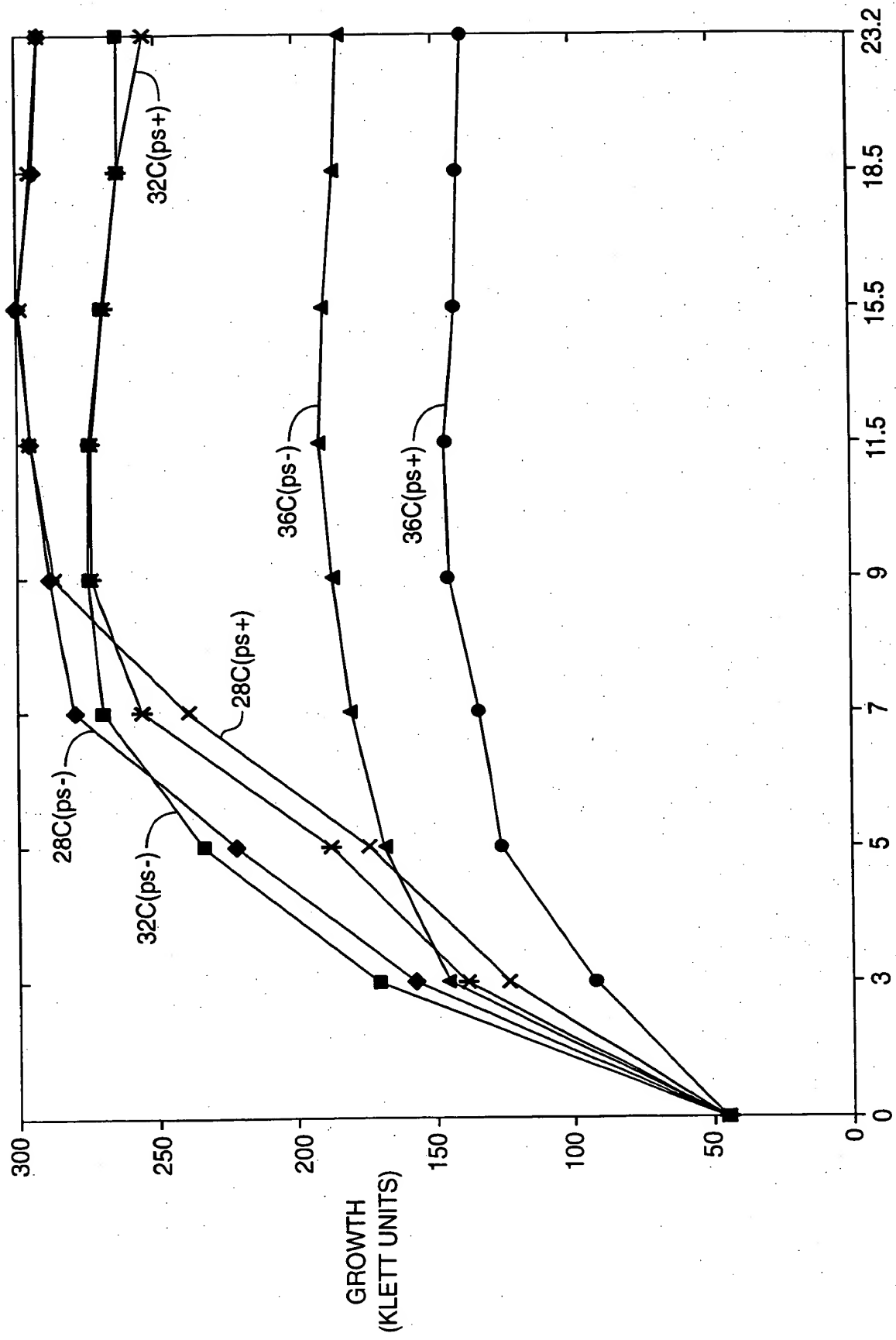

FIG._2

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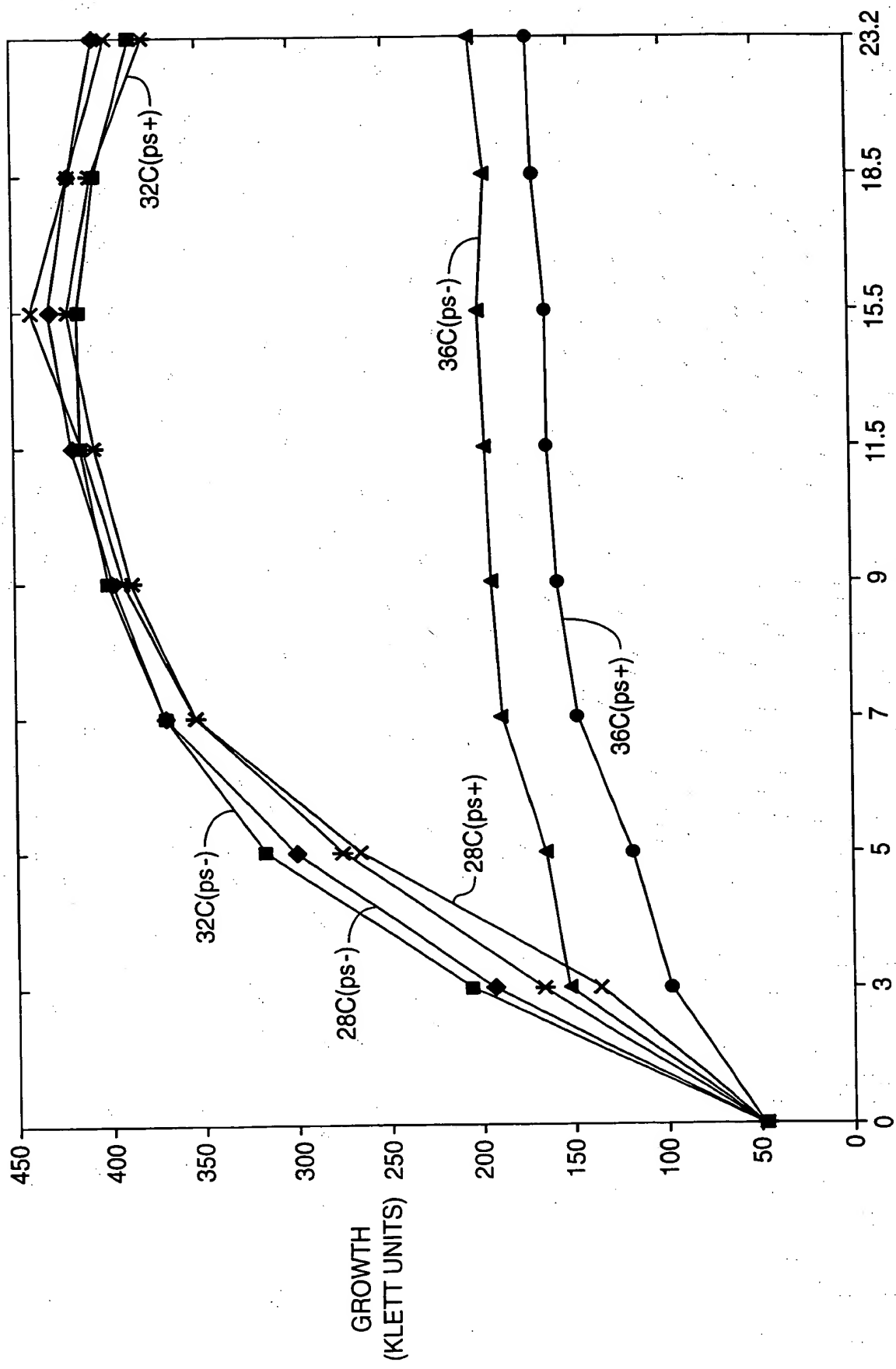

FIG._3